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Date: April 24, 2017 at 4:56:53 PM PDT
To: "Aycock.Mary@epa.gov" <Aycock.Mary@epa.gov>
Subject: TIAA Proposed Plan comment

Dear Ms. Aycock,

Attached is a comment on the TIAA Proposed Plan composed by members of my undergraduate Ecological Anthropology class at University of Arizona.

Thank you for your time and consideration,

Janelle

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April 22, 2017

To Whom It May Concern:

We are students in an undergraduate course at the University of Arizona entitled "Ecological Anthropology," a special topics class focused around the theme *Toxic! The Anthropology of Exposure*. As a class we have read and discussed the EPA's Tucson International Airport Area Proposed Plan. We have also analyzed the plan from an anthropological perspective – both making observations about the way the plan has been presented, and reviewing the remediation alternatives. The following commentary first discusses our concerns about the Proposed Plan as a written document itself – including its inability to reach its target audience. We follow this up with naming our preferred alternative, and outlining the reasons for this choice.

The presentation of the Proposed Plan presents many challenges in itself. Among these are 1) the plan's heavy reliance on scientific and economic jargon; 2) an inability to reach those most impacted, namely Spanish speakers, and; 3) an obvious bias toward Alternative 3 throughout the document. We discuss each of these concerns below.

1) The presentation of the proposed plan in its current format is complicated to understand as a non-expert community member. The plan claims to "provide the public with background information" on the state of the area's groundwater. However, the complicated language and scientific jargon utilized in the Plan would likely be unclear to most Tucson citizens. Discussions of specific scientific terms, the mechanics of the water remediation system, and the potential risks and benefits of altering the current system of water remediation was difficult for our class to understand, and is therefore likely incomprehensible to a majority of the public it aims to address.

For example, when comparing the costs of each alternative, Presented Worth and Value Cost are undefined, making it extremely difficult to accurately compare the options without consulting experts. In addition, it was unclear to us what entity is paying for the costs. This is vital information to have when forming an opinion on the matter. In summary, terms and language throughout the report are confusing and undefined. The heavily reliance on acronyms causes confusion and lack of clarity (despite the inclusion of a glossary). There is no real comprehensive way for an average Tucson citizen to understand this document.

2) Another factor compounds the inaccessibility of the document. By incorporating an anthropological perspective, we have isolated one of the deficiencies in your plan and implementation, which is the accommodation the EPA has made for Spanish speakers in the community impacted. Although translation services were offered at the meeting, and a pamphlet about the plan was administered in Spanish, the pamphlet is not informational enough to allow individuals to make an informed decision about picking an alternative. We are also concerned about the accessibility of this meeting, and whether or not it was circulated in the impacted communities.

This is a valid concern because the demographics of the zip codes surrounding the Superfund site indicate that a majority of the individuals in those areas are linguistically isolated,

and are not English speakers. According to the EPA's Environmental Justice Survey Tool, for the zip codes closest to the Superfund site (85746 and 85706), these areas were 80% and 91% linguistically isolated respectively, and about half of the population there did not speak English "Well" or "Very well". We are concerned that this demographic is not being included and fully represented by the EPA.

We are also concerned that these individuals would not be able to access the materials through other means because of their inaccessibility. According to the 2015 American Community Survey, out of the 206,448 people listed in the Tucson population, 25,171 individuals do not have access to a computer and 24,989 do not have an internet subscription. This means that the entire population does not have equal accessibility to these materials, so do not have the means to actively participate in the discussion of choosing an alternative that would work best for the community.

The point of this EPA Proposal Plan Meeting was to give some agency to the communities adversely affected by environmental toxins (in which the health disparities they are experiencing are the fault of the Tucson International Airport, Hughes Aircraft Company, and the United States Air Force). By limiting the means of information sharing to the internet (and not handing this information out directly to communities), and by not presenting the information as completely in Spanish (or advertising for this meeting in Spanish in affected communities) these individuals are not actually granted agency because they are not given the means to contribute and participate in deciding the route of implementation for the proposed plan.

3) An additional flaw within the Proposed Plan is that it clearly biases the reader in favor of Alternative 3 from the beginning. The very language of the Plan – the use of the positive "preferred" rather than "selected", speaking of "community acceptance of the Preferred Alternative" rather than a more neutral "community response to" – generates positive associations in the reader's mind. While mere connotation may be overlooked, the constant bolding and color emphasis of "Preferred Plan" draws attention to Alternative 3 throughout the Plan. These factors, and the way that the document dedicates an individual section to Alternative 3 on page 1 and a lengthy section to Alternative 3 on page 11, it seems that any reader, regardless of comprehension level, would come away from this Plan with Alternative 3 fixed firmly in their mind.

Given the inadequacy of this document to provide an unbiased, accessible Proposed Plan for public readership, it was difficult for us to choose an alternative. However, after some additional research and much debate we would like to encourage the EPA to not accept the minimal alleviation of risk, but instead move forward with Alternative 5. Alternative 5 has been proven to be effective. A case study by Palumbo et al., entitled "Influence of nitrogen and phosphorus on the in situ bioremediation of trichloroethylene," states: "In the field, the addition of TEP+N2O to the pulsed injection of CH4 resulted in dramatic stimulation of TCE-degrading potentials observed in ground water enrichments" (1).

Another set of researchers, Travis and Rosenberg, explain the process a little more simply, writing "an in situ bioremediation field demonstration was performed at the U.S. DOE's Savannah River site in 1992−1993 to remediate subsurface TCE contamination. This demonstration involved stimulating indigenous methanotrophic bacteria with injection of

methane, air, and air-phase nutrients below the water table and vacuum extraction in the vadose zone" (2). This case study in Aiken, South Carolina, demonstrates that in-situ (on-site) remediation can be successful, creating optimal conditions for microbes to break down the toxic chemical solvents we've used in the past. We have surpassed the point of allowing these processes to break down naturally, because without the help of microbes biogeochemical time is too slow for Tucson citizens already ingesting contaminated water.

In summary, from an anthropological perspective, if the EPA is truly interested in receiving comments from the public, the Proposed Plan should be made more accessible and more neutral before putting residents on the spot to draw informed conclusions. The current document is not accessible to those without a specific college education. Documentation that was provided in Spanish was even less informative, despite the fact that the residents most impacted are Spanish speakers. Furthermore, the bias toward alternative three predisposes residents to come to your preferred conclusion, without the ability to consider the plan on their own. That said, we are aware that the EPA will move forward with one of the proposed Alternatives and so have suggested that they reconsider their preference and prioritize long-term impact and human health over short-term, seemingly cost-effective solutions that actually carry heavy financial and health risks, by selecting Alternative 5.

Thank you for your time and attention.

Undersigned members of Anthropology 307, Spring 2017

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Emily Love	Bitty Fennie	Cassondre Corrington	Mallary Parker
Lauren Thompson	Ben Wagner	Megan Zimbelman	

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Sources cited:

1. Palumbo, A.V., Scarborough, S.P., Pfiffner, S.M. et al. Appl Biochem Biotechnol (1995) 51: 635. DOI:10.1007/BF02933465

2. Bryan J. Travis and and Nina D. Rosenberg, Modeling in Situ Bioremediation of TCE at Savannah River: Effects of Product Toxicity and Microbial Interactions on TCE Degradation, Environmental Science & Technology 1997 31 (11), 3093-3102
DOI: 10.1021/es9610186